# BIT

**Note:** Attempt all questions from Section A and B and only two questions from Section. C

**Section: A**    (Very short answer type questions to be answered in about 20 words)

(Marks: 8x2 = 16)

1.  i)     How is static array represented in memory
    ii)    State the difference between Linear and Binary search algorithms.
    iii)   State any three applications of stackes.
    iv)    What are the advantages of dynamic queue over static queue .
    v)     State the syntax of malloc and calloc functions.
    vi)    How are void pointers different from other pointers?
    vii)   State any two advantages of double linked lists over singly lihed lists.
    viii)  What are various possible tree traversal techniques? State each briefly.

**Section: B**    (Short answer type questions to be answered in about 250 words)

(Marks: 4x8 = 32)

2.  Write a function to search a number from a list of numbers using Binary search algorithm.

3.  Write a program to implement a stack of numbers. Write push and POP functions.

4.  Discuss the difference between call by value and call by reference.

5.  Write a function to delete a node from a doubley linked list.

**Section: C**    (Long answer type question to be answered in about 500 words)

Marks: (2x16=32)

6.  i)   What are various sorting algorithms? State the difference between Bubble sort, selection sort and quick sort algorithms.
    ii)  Write N function for inserting an element in a static array

7.  What is a Queue? Differentiate between a static, dynamic and provity queues. Implement a queue using arrays. Write functions for inserting and removing elements.

8.  i)   What is a dynamic array? How a dynamic array is created using pointers?
    ii)  Demonstrate the use of pointers to pass a function as an argument to another function through a program.

9.  i)   What is a Binary Search Tree. Explain the operations of inserting and searching in a binary search tree.
    ii)  What is a Binary Tree? Discuss pre-order, post-order and in-order tree traversal techniques

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